

2N5401

Amplifier Transistor • Collector-Emitter Voltage: V_{CEO}= 150V • Collector Dissipation: P_C (max)=625mW

- Suffix "-C" means Conter Collector (1. Emitter 2. Collector 3. Base)



1. Emitter 2. Base 3. Collector

PNP Epitaxial Silicon Transistor

Absolute Maximum Ratings T_a=25°C unless otherwise noted

Symbol	Parameter	Value	Units	
V _{CBO}	Collector-Base Voltage	-160	V	
V _{CEO}	Collector-Emitter Voltage	-150	V	
V _{EBO}	Emitter-Base Voltage	-5	V	
I _C	Collector Current	-600	mA	
P _C	Collector Dissipation	625	mW	
TJ	Junction Temperature	150	°C	
T _{STG}	Storage Temperature	-55 ~ 150	°C	

Electrical Characteristics T_a=25°C unless otherwise noted

Symbol	Parameter	Test Condition	Min.	Тур.	Max.	Units
BV _{CBO}	Collector-Base Breakdown Voltage	$I_C = -100 \mu A, I_E = 0$	-160			V
BV _{CEO}	* Collector-Emitter Breakdown Voltage	$I_C = -1 \text{mA}, I_B = 0$	-150			V
BV _{EBO}	Emitter-Base Breakdown Voltage	$I_E = -10\mu A, I_C = 0$	-5			V
I _{CBO}	Collector Cut-off Current	V _{CB} = -120V, I _E =0			-50	nA
I _{EBO}	Emitter Cut-off Current	V_{EB} = -3V, I_{C} =0			-50	nA
h _{FE}	* DC Current Gain	I _C = -1mA, V _{CE} = -5V I _C = -10mA, V _{CE} = -5V I _C = -50mA, V _{CE} = -5V	30 60 50		240	
V _{CE} (sat)	* Collector-Emitter Saturation Voltage	I_C = -10mA, I_B = -1mA I_C = -50mA, I_B = -5mA			-0.2 -0.5	V V
V _{BE} (sat)	* Base-Emitter Saturation Voltage	I_C = -10mA, I_B = -1mA I_C = -50mA, I_B = -5mA			-1 -1	V V
f _T	Current Gain Bandwidth Product	I _C = -10mA, V _{CE} = -10V, f=100MHz	100		400	MHz
C _{ob}	Output Capacitance	V _{CB} = -10V, I _E =0, f=1MHz			6	pF
N _F	Noise Figure	I_C = -250μA, V_{CE} = -5V R_S =1K Ω f=10Hz to 15.7KHz			8	dB

^{*} Pulse Test: Pulse Width≤300μs, Duty Cycle≤2%

Typical Characteristics

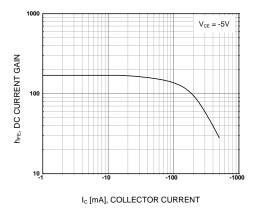


Figure 1. DC current Gain

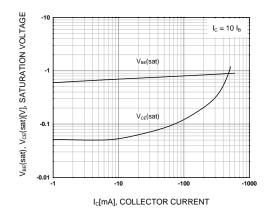


Figure 2. Base-Emitter Saturation Voltage Collector-Emitter Saturation Voltage

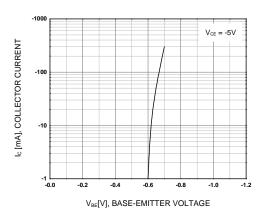


Figure 3. Base-Emitter On Voltage

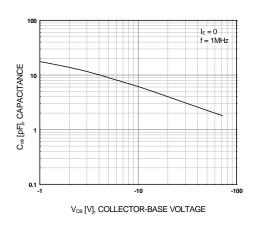


Figure 4. Output Capacitance

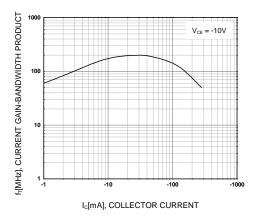
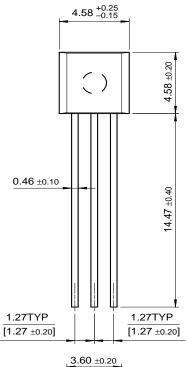


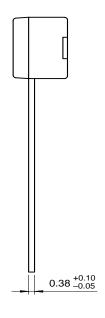
Figure 5. Current Gain Bandwidth Product

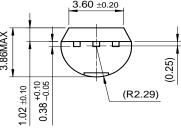
©2004 Fairchild Semiconductor Corporation Rev. B, May 2004

Package Dimensions

TO-92







TRADEMARKS

The following are registered and unregistered trademarks Fairchild Semiconductor owns or is authorized to use and is not intended to be an exhaustive list of all such trademarks.

FAST[®] $ACEx^{TM}$ ISOPLANAR™ Power247™ SuperFET™ $\mathsf{FASTr}^{\mathsf{TM}}$ ActiveArrav™ LittleFET™ PowerSaver™ SuperSOT™-3 FPS™ MICROCOUPLER™ $\mathsf{PowerTrench}^{\mathbb{R}}$ SuperSOT™-6 Bottomless™ QFET® $\mathsf{CoolFET}^{\mathsf{TM}}$ FRFET™ MicroFET™ SuperSOT™-8 QS™ SyncFET™ GlobalOptoisolator™ MicroPak™ $CROSSVOLT^{TM}$ MICROWIRE™ TinyLogic[®] GTO™ QT Optoelectronics™ $\mathsf{DOME}^\mathsf{TM}$ HiSeC™ TINYOPTO™ MSX^{TM} EcoSPARK™ Quiet Series™ I^2C^{TM} $MSXPro^{TM}$ RapidConfigure™ TruTranslation™ E²CMOS™ OCX^{TM} EnSigna™ i-Lo™ RapidConnect™ UHC™ $\mathsf{UltraFET}^{\circledR}$ ImpliedDisconnect™ FACT™ OCXPro™ uSerDes™ OPTOLOGIC® VCX^{TM} SILENT SWITCHER® FACT Quiet Series™ OPTOPLANAR™ SMART START™

Across the board. Around the world.™ OPTOPLANAR™ SMART STA The Power Franchise® PACMAN™ SPM™

Programmable Active DroopTM
POPTM
StealthTM

DISCLAIMER

FAIRCHILD SEMICONDUCTOR RESERVES THE RIGHT TO MAKE CHANGES WITHOUT FURTHER NOTICE TO ANY PRODUCTS HEREIN TO IMPROVE RELIABILITY, FUNCTION OR DESIGN. FAIRCHILD DOES NOT ASSUME ANY LIABILITY ARISING OUT OF THE APPLICATION OR USE OF ANY PRODUCT OR CIRCUIT DESCRIBED HEREIN; NEITHER DOES IT CONVEY ANY LICENSE UNDER ITS PATENT RIGHTS, NOR THE RIGHTS OF OTHERS.

LIFE SUPPORT POLICY

FAIRCHILD'S PRODUCTS ARE NOT AUTHORIZED FOR USE AS CRITICAL COMPONENTS IN LIFE SUPPORT DEVICES OR SYSTEMS WITHOUT THE EXPRESS WRITTEN APPROVAL OF FAIRCHILD SEMICONDUCTOR CORPORATION.

As used herein:

1. Life support devices or systems are devices or systems which, (a) are intended for surgical implant into the body, or (b) support or sustain life, or (c) whose failure to perform when properly used in accordance with instructions for use provided in the labeling, can be reasonably expected to result in significant injury to the user.

2. A critical component is any component of a life support device or system whose failure to perform can be reasonably expected to cause the failure of the life support device or system, or to affect its safety or effectiveness.

PRODUCT STATUS DEFINITIONS

Definition of Terms

Datasheet Identification	Product Status	Definition
Advance Information	Formative or In Design	This datasheet contains the design specifications for product development. Specifications may change in any manner without notice.
Preliminary	First Production	This datasheet contains preliminary data, and supplementary data will be published at a later date. Fairchild Semiconductor reserves the right to make changes at any time without notice in order to improve design.
No Identification Needed	Full Production	This datasheet contains final specifications. Fairchild Semiconductor reserves the right to make changes at any time without notice in order to improve design.
Obsolete	Not In Production	This datasheet contains specifications on a product that has been discontinued by Fairchild semiconductor. The datasheet is printed for reference information only.

©2004 Fairchild Semiconductor Corporation Rev. I11